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## ABSTRACT .

A new technique for Hard Disk Drive (HDD) servo-burst demodulation is provided. A 4-samples per dibit Discrete Fourier Transform (DFT) amplitude estimation is used to calculate the read-head servo-position error signal. Comparatively, the

5     conventional method of burst demodulation — called burst integration — typically uses more than 8 samples/dibit. Consequently, the new 4-samples/dibit DFT burst-demodulation scheme requires fewer samples per dibit than does burst integration, thus reducing the disk space occupied by the burst data while increasing the performance as compared to burst integration. Furthermore, the DFT scheme does not

10     require the samples to be synchronized to any particular points of the servo burst, and can include an averaging algorithm that further improves performance for a given Signal to Noise Ratio (SNR). Moreover, the same sample-clocking circuit that detects the Gray Code servo information can also implement the DFT burst-demodulation scheme to demodulate the servo burst.

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